

Message Text

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ACTION EUR-12

INFO OCT-01 ISO-00 INR-07 CIAE-00 /020 W
-----111203Z 123580 /12

R 110945Z MAR 77
FM AMEMBASSY MOSCOW
TO SECSTATE WASHDC 4952

C O N F I D E N T I A L SECTION 1 OF 2 MOSCOW 3202

EO 11652: GDS
TAGS: ECON ENRG EMIN UR
SUBJECT: THE NORTHWEST SIBERIAN (TYUMEN) GAS FIELDS

REF: STATE 38262 (C-ER-7-50838)

SUMMARY: THIS MESSAGE RESPONDS AND IS KEYED TO SPECIFIC QUESTIONS RAISED REFTEL. A SEPARATE DESCRIPTIVE REPORT WILL BE MADE ON THE SUBJECT. IT SHOULD BE NOTED THAT SOVIET SIDE UNILATERALLY AND WITHOUT EXPLANATION CANCELLED VISIT TO URENGOY GAS FIELDS. RESPONSES ON URENGOY ARE DRAWN THEREFORE FROM CONVERSATIONS IN MOSCOW, TYUMEN AND NADYM WITHOUT VISUAL EVIDENCE. REFERENCE IS ALSO MADE TO GAS MINISTER ORUDZHEV'S 1976 BOOK "GAZOVAYE PROMYSHLENNOST PO PUTI PROGRESSA" (THE GAS INDUSTRY ON THE PATH OF PROGRESS), CITED HEREIN AS "ORUDZHEV". END SUMMARY.

1. URENGOY. RAPID DEVELOPMENT PLANNED, BUT CONSIDERABLE NUMBER OF OBSTACLES EXIST
A) NOT SPECIFICALLY PROVIDED. PRODUCTION GOAL BY 1980 APPEARS TO BE ABOUT 66 BILLION CUBIC METERS (BCM), EXCLUSIVELY FROM UPPER (SENAMEN) LAYER DEPOSITS. THIS FIGURE IS ARRIVED AT BY FOLLOWING DEDUCTIONS: TOTAL TYUMEN OUTPUT IS TO BE 155 TRILLION CUBIC METERS/YEAR IN 1980 (ORUDZHEV P. 39); URENGOY IS TO COME ON STRENGTH AT 15 BCM/YEAR IN 1978; NORTH TYUMEN OUTPUT IS TO INCREASE BY ANNUAL INCREMENTS OF 25 BCM/YEAR IN 1978, 1979 AND 1980. SINCE MEDVEZHYE WILL HAVE REACHED CAPACITY AT
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65 TCM IN 1977; MOST OF THIS WILL BE FROM URENGOY. ALSO, IT WAS STATED THAT URENGOY WILL BE PRODUCING AT TWO-THIRDS CAPACITY BY 1980. EVENTUAL TARGET FOR URENGOY IS 100 BCM/YEAR (ORUDZHEV). DELEGATION WAS GIVEN ONE ESTIMATE OF 300 MILLION CM/DAY BY 1981 OR 1982 OR ABOUT 100 BCM/YEAR.
B) 500 WELLS ANTICIPATED BUT NO TIME FRAME INDICATED.
C) AVERAGE DRILLING TIME PER WELL IS ONE MONTH. AVERAGE

DEPTH ABOUT 1200 METERS. SEVEN DRILL CREWS PRESENTLY WORKING.
D) DRILLING PROBLEMS: THICKNESS OF PERMAFROST (250-400 METERS); WIDESPREAD EXISTENCE OF SWAMPS, LAKES, HILLOCKS, HUMPS, LOW AREAS; SEVERITY OF CLIMATE (TEMPERATURES BELOW -50 DEGREES C, HIGH WINDS) PRECLUDES NORMAL DRILLING METHODS; DRILLING BY CLUSTER PATTERN (LINEAR, 70 METERS APART) WITHOUT FULL FORE-KNOWLEDGE OF EFFECTS; SPECIAL WELL DESIGN REQUIRED; DRILLING CAN BE DONE ONLY IN SUMMER; NECESSITY TO AVOID MELTING PERMAFROST PRECLUDES HORIZONTAL DRILLING; MUCH CONDENSATE REMAINS; NEED TO USE LOW ALLOY STEEL HAS RESULTED IN SOME PITTING AND LEAKS; A VERY PROMINENT WATER-BEARING LAYER (2,000 FEET THICK) UNDERLIES BED; THERE IS DIFFICULTY IN CORRELATING RESULTS FROM DRILLING BECAUSE OF SIGNIFICANT CHANGES IN TOPOGRAPHY FROM WELL TO WELL; ORIGINAL DOWNHOLD PRESSURE QUITE LOW (122 ATMOSPHERES), REQUIRING BUILDING OF ADDITIONAL BOOSTER STATIONS. WELLS REJECTED BY INSPECTOR APPARENTLY CANNOT BE REPAIRED.

3) 35-45 WELLS COMPLETED AT PRESENT IN 8 CLUSTERS; ADDITIONAL DRILLING TO OCCUR APRIL-OCTOBER, 1977. 50 EXPLORATORY WELLS DRILLED.

F) 1978. 15 BILLION CUBIC METERS.

G) CAPITAL STOCK; NEGATIVE. IT WAS STATED THAT CONSTRUCTION COSTS HERE WILL BE TWICE AS HIGH AS ELSEWHERE. COSTS 400-500,000 RUBLES TO DRILL ONE WELL, DESCRIBED AS EIGHT TIMES THE COST OF DRILLING ELSEWHERE.

H) CAPACITY FROM UPPER (SENAMEN) DEPOSIT ALONE SHOULD BE 100 BCM/YEAR (ORUDZHEV, P. 16). 1981 OR 1982. SECOND LEVEL OF GAS (VALAZHIN - GOTHERIV), LIES AT 1770-3100 METER LEVEL. ONE ESTIMATE OF EVENTUAL 200 BCM/YEAR CAPACITY (SOLIMENTOV, CONFIDENTIAL

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DEPUTY DIRECTOR OF TYUMEN GZAPROM), BUT THIS APPEARS HIGHLY SPECULATIVE.

2. MEDVEZHYE; 1977. 65 BCM/YEAR (44 BCM IN 1976).

A) 140-150 IN OPERATION. PLANNED: NEGATIVE. HOWEVER, PIPELINE WILL BE EXTENDED INTO NORTHERN (PERMAFROST) PORTION OF FIELD IN 1977. AVERAGE FLOW SAID TO BE ONE MILLION CM/DAY (ORUDZHEV, P. 35), WHICH WOULD REQUIRE ABOUT 175 WELLS TO PRODUCE IN TARGET AREA. DELEGATION WAS TOLD THAT "OPTIMIZED" FLOW RATE IS 1.5 MILLION CM/DAY, USING 6" TUBE AND 8" CASING.

B) PRIMARY PROBLEMS OF MEDVEZHYE: JUXTAPOSITION OF GAS TREATMENT AND COMPRESSION STATIONS. DRILLING IN PERMAFROST (CAVE-INS, ONE WELL FROZEN WHEN WATER LEAKED IN). INCLEMENT WEATHER (25 CONSECUTIVE WORK DAYS LOST RECENTLY). TRANSPORTATION OF HEAVY EQUIPMENT ON SNOWPATHS, WHICH REQUIRE CONSTANT RE-BUILDING; PIPE CANNOT BE WELDED AT TEMPERATURES BELOW -50 DEGREES C. MANY VEHICLES NEEDED FOR SNOW REMOVAL (SOMETIMES 12 METER DRIFTS MUST BE MOVED). (SOVIET SPECIALISTS SAID THAT MEN CAN STAND THE CLIMATE EXTREMES BUT EQUIPMENT DOES

NOT). POSSIBLE MISLOCATION OF SUPPORT CITY (NADYM) - SEE SEPARATE REPORT. LOCATION OF LEAKS IN SWAMPS, INABILITY TO USE HYDRAULIC TESTING; WHETHER TO USE ADSORPTION OR ABSORPTION TREATMENT METHODS. CORROSION OF PIPES. (COATING WAS DESCRIBED AS A "SERIOUS PROBLEM".) NEED TO CONSTRUCT PIPELINES SEPARATELY. LOCATION OF EXTENSIVE INFRASTRUCTURE A THOUSAND MILES FROM MAIN SOURCE OF SUPPLIES (TYUMEN CITY) INCLUDING CONSTRUCTION OR ASSEMBLY OF AIRPORT, DOCKS ON SOLID BANKS, MOTOR ROADS, RAILROAD, HOUSING, SCHOOLS, CULTURAL FACILITIES, ETC. NEED TO PRODUCE GRAVEL BY SINTERING SAND, LOCAL FILL HAVING BEEN FOUND INADEQUATE.

LESSONS FOR URENGOY: CLUSTER WELLS, ABSORPTION METHOD OF TREATMENT, RAPID VERTICAL DRILLING (12 HOURS MAXIMUM) THROUGH PERMAFROST LAYER - WHICH IS HOWEVER CONSIDERABLY THICKER AT URENGOY THAN MEDVEZHYE. TURBODRILLS CANNOT BE USED FOR DRILLING THROUGH PERMAFROST. TAKE OFF VALVES TEMPORARILY AFTER DRILLING TO AVOID WATER ACCUMULATION IN WELLS. OBTAIN CONFIDENTIAL

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GRAVEL FOR FILLING DEPRESSION ONCE RAILROAD FROM TYUMEN (NOW CONSTRUCTED AS FAR AS SURGUT) REACHES URENGOY. LOCATE GAS DRYERS UPSTREAM FROM COMPRESSOR IN ORDER TO AVOID DAMAGE TO LATTER FROM DIRTY GAS.

C) NEGATIVE.

D) AROUND TWENTY YEARS. PROVEN RESERVES 1.5 TCM. ASSUMING LESS THAN 100 BCM EXTRACTED BY 12/31/76, PRODUCTION AT 65 BCM/YEAR SHOULD LAST THROUGH 1996. HOWEVER, DECLINING GAS PRESSURE AND GRADUAL WATER SEEPAGE COULD REDUCE THIS (THERE HAS AS YET BEEN NO WATER IN PRODUCTION WELLS). US DELEGATION FELT CURRENT SOVIET METHODS RESULT IN GAS BEING LEFT BEHIND. E) AUTOMATION. FRENCH-DESIGNED ABSORPTION PLANT IN MEDVEZHYE, ITALIAN-DESIGNED COMPRESSION PLANT (SOUTH OF NADYM) APPEARED TO BE SUBSTANTIALLY AUTOMATED. US DELEGATION DID NOT OBSERVE DRILLING (ONLY DONE IN SUMMER) OR PIPELINE LAYING, BUT FELT PIPE WELDING PROCEDURES MADE CONSIDERABLY LESS USE OF AUTOMATION THAN WOULD US TEAM. 120-MAN BRIGADE CREW (ONE OF THREE) OBSERVED WELDING PIPELINE SOUTHWEST OF NADYM HAD WELDED 59 KILOMETERS THIS WINTER AND HAD 25 KILOMETERS TO GO (RUNNING BEHIND SCHEDULE) BEFORE SPRING.

F) PROBLEMS OF PREPARATION FOR PIPELINE TRANSPORT. SEE ABOVE. SUBTERRANEAN PIPELINE REQUIRE COOLING OF GAS OR INSULATION

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ACTION EUR-12

INFO OCT-01 ISO-00 INR-07 CIAE-00 /020 W
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TO SECSTATE WASHDC 4953

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OF PIPELINE TO PRECLUDE MELTING. DEPUTY MINISTER ZAYTSEV
OF THE MINISTRY OF GAS INDUSTRIES TERMED THE NECESSITY OF
DEALING SIMULTANEOUSLY WITH THE TREATMENT AND COOLING OF
GAS AT THE OUTSET OF A PROJECT "A VERY SERIOUS QUESTION."

3. IN CURRENT FIVE-YEAR PLAN VINGAPUROV AND KOMSOMOLSK ARE
TO BE PUT INTO OPERATION (ORUDZHEV, P. 38). ALSO A THIRD FIELD
NEAR THESE TWO. COLLECTIVE RESERVES OF THESE THREE FIELDS,
LYING 270-300 KMS. SOUTH OF URENGOY, ARE ESTIMATED AT 1.2 TCM.

A) NEGATIVE

B) NEGATIVE.

C) THERE WAS WIDELY CONFLICTING INFORMATION ABOUT ZAPOLYARNY
AND YAMBURG, EACH WITH 1.5-4 TCM ESTIMATES RESERVES. CHIEF
OF THE TECHNICAL ADMINISTRATION OF THE GAS INDUSTRY (SEDYKH)
SAID THAT THEY WOULD BE PUT INTO OPERATION DURING CURRENT
FIVE-YEAR PLAN. THE CHIEF OF THE TECHNICAL DIVISION OF
TYUMEN GAS SAID THAT THEY WOULD BE PUT INTO EFFECT ONLY AFTER
1985. THE ORUDZHEV BOOK EXCLUDES THEM FROM THE LIST OF FIELDS
TO BE STARTED BEFORE 1980. DIAGRAM IN ORUDZHEV'S BOOK (P. 15)
SHOWS 24 WELLS LOCATED AT YAMBURG, PRESUMABLY EXPLORATORY.
PRODUCTION PLANS FOR 1980 DO NOT APPEAR TO INCLUDE ANY OUTPUT
FROM THESE AREAS (ALSO SEE BELOW).

D) NEGATIVE

E) INCREASED CAPITAL WOULD PROBABLY LEAD TO FASTER DEVELOPMENT
OF VINGAPUROV AND KOMSOMOLSK FIELDS. DEVELOPMENT OF YAMBURG
AND ZAPOLYARNY, WHICH APPEAR TO BE ENTIRELY IN PERMAFROST
AREA, PRESENT PROBLEMS FOR CURRENT STATE OF SOVIET TECHNOLOGY.

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EXPERIENCE IN NORTHERN PART OF MEDVEZHYE AND AT URENGOY,
STARTING IN 1977, MAY YIELD EXPERIENCE FACILITATING FASTER
SUBSEQUENT DEVELOPMENT OF NORTHERN FIELDS.

F) LACK OF INFRASTRUCTRE WOULD BE A SERIOUS PROBLEM AT
PRESENT FOR DEVELOPMENT OF NORTHERN FIELDS. SOVIETS ARE
CURRENTLY ESTABLISHING A CITY AT URENGOY WHICH SOME EXPECT TO
GROW FROM SCRATCH AND ATTAIN A POPULATION OF 100,000 BY 1987

(BY CONTRAST NADYM IS NOW ABOUT 36,000). THIS CITY WOULD PRESUMABLY PROVIDE INFRASTRUCTURE FOR OTHER NORTHERN GAS FIELDS.

4. RESERVES 1/1/1976 (ABC): USSR 25.8 TCM: SIBERIA 18.2 TCM: TYUMEN 17.1 TCM (ORUDZHEV, P. 13). DELEGATION RECEIVED NO UPDATE ON THIS FIGURE, BUT SOVIET RESERVES HAVE BEEN GROWING ANNUALLY AT ABOUT 2 TCM SINCE 1967. DELEGATION WAS TOLD THAT ONLY ABOUT ONE-THIRD OF NORTH TYUMEN AREA HAS BEEN EXPLORED FOR GAS OR OIL.

A) NEGATIVE, BUT AT CURRENT RATE ABOUT 25 AND 35 TCM, RESPECTIVELY.

B) CHIEF GEOLOGIST AT NADYM EXPRESSED EXPECTATION CONFIDENTIALLY THAT LARGE DEPOSITS WILL BE FOUND BOTH TO NORTH AND TO SOUTH OF URENGOY. OFFSHORE EXPLORATION (SIBERIAN NORTH COAST) ALSO LIES AHEAD.

C) NO. HOWEVER, EXPLOITATION OF DEPOSITS IN PERMAFROST ARE STILL AN UNSOLVED PROBLEM IN THEIR VIEW. IT WAS STATED THAT GAS WILL BE STEADILY MORE COSTLY TO PRODUCE.

D) SOVIET OFFICIALS WERE CAUTIOUS ON OIL. IN CONFIDENTIAL DISCUSSION CHIEF GEOLOGIST AT NADYM AND DEPUTY CHIEF OF TYUMEN GAS INDUSTRY BOTH INDICATED CONFIDENCE THAT OIL WOULD BE DISCOVERED. NO OIL HAS APPARENTLY BEEN FOUND SO FAR AT URENGOY. TYUMEN GAS INDUSTRY SPECIALISTS SAID THAT OIL HAS BEEN FOUND AT A FEW PLACES IN THE REGION BUT DOES NOT FIGURE IN CURRENT SOVIET CALCULATIONS.

5. PROBLEMS. SOVIETS PREFER TO LAY PIPELINES AROUND PERMAFROST AREAS. ABOVE-GROUND PIPES IN PERMAFROST MUST BE LIMITED TO 1,000 MM IN SOVIET VIEW AND ARE THUS UNSATISFACTORY.

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A) ALTHOUGH SOVIET OFFICIALS WERE RELUCTANT TO DISCUSS BREAKDOWNS, THEIR OWN QUESTIONS ON LEAK DETECTION AND CORROSION PREVENTION INDICATE THAT SOME HAVE OCCURRED. CRACKING OF PIPE WAS DESCRIBED BY ONE SOVIET TECHNICIAN AS A "COLLOSAL PROBLEM", NOT LIMITED TO THE NORTH, WHICH IS YET TO BE RESOLVED.

B) NEGATIVE.

C) NOT WIDELY. DELEGATION OBSERVED PLOW PUSHING SNOW PILES TO BRACE PIPELINE IN WELDING PHASE. PLOW STRUCK PIPELINE IN THE PROCESS. USE OF WELDER'S ARC ON OUTSIDE OF PIPELINE HAD EFFECT OF DAMAGING THE PIPE, ACCORDING TO MANAGER OF CONSTRUCTION OF PANHANDLE EASTERN.

D) SOVIETS STATED THAT ONLY 5-10 PERCENT OF ANNUAL INVESTMENT OF ONE BILLION RUBLES IS EXPENDED ON IMPORTS. HOWEVER VISUAL OBSERVATION AND/OR DISCUSSIONS INDICATED THAT THE FOLLOWING IMPORTED ITEMS SUPPORT THE PRODUCTION AND TRANSPORT OF TYUMEN GAS: GENERAL ELECTRIC TURBINES IN THE NADYM COMPRESSOR STATIONS; ITALIAN COMPRESSORS; 7 CATERPILLAR 594 OR 596 MODEL PIPE LAYING TRACTORS ON THE MAIN TRUNK PIPELINE, PLUS TWO FLOW WELDING; INTERNATIONAL HARVESTER VEHICLES; GERMAN (MANNESMANN)

AND ITALIAN LARGE DIAMETER PIPE; LARGE QUANTITIES OF GERMAN ELECTRODES FOR WELDING; FRENCH CREUSOT-LOIRE AIR COOLING SYSTEMS IN FIVE GAS TREATMENT PLANTS AT MEDVEZHYE, FRENCH SILICON UNITS, US (LADDEN) PRESSURE REDUCTION UNIT AT NADYM STATION; (US) TAYLOR GAUGES IN FRENCH-DESIGNED GAS TREATMENT PLANTS. THIS LIST IS SUGGESTIVE RATHER THAN EXHAUSTIVE.

E) SOVIETS DENY ANY MANPOWER SHORTAGE. WAGE INCENTIVES (2.7 TIMES NORMAL WAGE) APPARENTLY ARE SUFFICIENT INDUCEMENT TO COME NORTH.

F) FOUR OR FIVE. 1420 MM PIPELINE HAS CAPACITY OF 30-34 BCM/YEAR WITH COMPRESSORS 110-120 KILOMETERS APART AND PRESSURE OF 75 ATMOSPHERES. OF 36,000 KILOMETERS OF PIPELINE TO BE ADDED IN ALL OF USSR IN FIVE-YEAR PLAN, 12,000-14,000 ARE TO BE 1420 MM PIPE, (PERSPECTIVE FIFTH LINE IS BAI DARATSKAYA BAY-VORKUTA-UKTA.)

G) TWO. ONE LINKED TO MEDVEZHYE, NADYM AND WEST, COMPLETION DUE 1977. ONE PROCEEDING SOUTH, INCLUDING LINK TO THREE
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SMALLER FIELDS, COMPLETION DATE NOT GIVEN BUT, INFERENTIALLY, BY 1980.

H) DELEGATION WAS GIVEN GLOBAL INVESTMENT FIGURES FOR TYUMEN GAS FIELDS OF ONE BILLION RUBLES/YEAR.

6. 1976-1980. APPARENTLY FIVE BILLION RUBLES. 1981-85
NEGATIVE.

A) OFFICIAL AT NADYM STATED 750,000 MILLION RUBLES ("15-20 PERCENT OF TOTAL"). CHIEF OF GAS MINISTRY TECHNICAL DEPARTMENT, ALSO SPEAKING CONFIDENTIALLY, SAID THIS FIGURE IS TOO LOW. GOSPLAN OFFICIAL CHARGED WITH TRADE WITH WESTERN COUNTRIES ALSO SAID FIGURE IS CONSIDERABLY HIGHER. WITH REFERENCE TO INFRASTRUCTURE COSTS, 1981-85, CONSTRUCTION OF CITY OF URENGOY SHOULD BE VERY EXPENSIVE.

B) NEGATIVE, BUT 75 PERCENT OF ANTICIPATED EXPANSION OF USSR IN 1976-80 IS TO COME FROM TYUMEN GAS FIELDS.

C) NO SUCH MANPOWER SHORTAGE IS SAID TO BE ANTICIPATED.

7. THERE IS SOME CONSIDERATION BEING GIVEN TO AN LNG PLANT, BUT THIS DID NOT APPEAR TO BE CURRENT SUBJECT. IF CONSTRUCTED, IT WOULD BE BUILT ON SHORE SO AS TO HAVE ACCESS TO TANKERS. AT FINAL SESSION, DEPUTY MINISTER ZAYTSEV MENTIONED THAT SOVIET ICEBREAKERS, LED BY AN ATOMIC-POWERED CRAFT, ARE CURRENTLY IN PASSAGE EASTWARD FROM MURMANSK. SOVIET OFFICIALS SPOKE OF HOPE FOR OCEAN AND RIVER OR TRANSPORT TO SUPPORT FUTURE OPERATIONS IN NORTH TYUMEN. IT COULD NOT BE ASCERTAINED WITH CONFIDENCE WHETHER IN SOVIET JUDGMENT FUTURE LNG PLANT COULD BE LOCATED CLOSE TO SOURCE OR WOULD HAVE TO BE NEAR MURMANSK.
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Message Attributes

Automatic Decaptioning: X
Capture Date: 01-Jan-1994 12:00:00 am
Channel Indicators: n/a
Current Classification: UNCLASSIFIED
Concepts: GAS PRODUCTION, PIPELINES, VISITS
Control Number: n/a
Copy: SINGLE
Sent Date: 11-Mar-1977 12:00:00 am
Decaption Date: 01-Jan-1960 12:00:00 am
Decaption Note:
Disposition Action: RELEASED
Disposition Approved on Date:
Disposition Case Number: n/a
Disposition Comment: 25 YEAR REVIEW
Disposition Date: 22 May 2009
Disposition Event:
Disposition History: n/a
Disposition Reason:
Disposition Remarks:
Document Number: 1977MOSCOW03202
Document Source: CORE
Document Unique ID: 00
Drafter: n/a
Enclosure: n/a
Executive Order: GS
Errors: N/A
Expiration:
Film Number: D770084-0592
Format: TEL
From: MOSCOW
Handling Restrictions: n/a
Image Path:
ISecure: 1
Legacy Key: link1977/newtext/t19770369/aaaacitb.tel
Line Count: 330
Litigation Code IDs:
Litigation Codes:
Litigation History:
Locator: TEXT ON-LINE, ON MICROFILM
Message ID: 94c9bab9-c288-dd11-92da-001cc4696bcc
Office: ACTION EUR
Original Classification: CONFIDENTIAL
Original Handling Restrictions: n/a
Original Previous Classification: n/a
Original Previous Handling Restrictions: n/a
Page Count: 7
Previous Channel Indicators: n/a
Previous Classification: CONFIDENTIAL
Previous Handling Restrictions: n/a
Reference: 77 STATE 38262
Retention: 0
Review Action: RELEASED, APPROVED
Review Content Flags:
Review Date: 16-Mar-2005 12:00:00 am
Review Event:
Review Exemptions: n/a
Review Media Identifier:
Review Release Date: n/a
Review Release Event: n/a
Review Transfer Date:
Review Withdrawn Fields: n/a
SAS ID: 3136398
Secure: OPEN
Status: NATIVE
Subject: THE NORTHWEST SIBERIAN (TYUMEN) GAS FIELDS
TAGS: ECON, ENRG, EMIN, UR
To: STATE
Type: TE
vdkgvwkey: odhc://SAS/SAS.dbo.SAS_Docs/94c9bab9-c288-dd11-92da-001cc4696bcc
Review Markings:
Margaret P. Grafeld
Declassified/Released
US Department of State
EO Systematic Review
22 May 2009
Markings: Margaret P. Grafeld Declassified/Released US Department of State EO Systematic Review 22 May 2009